

United States of America Embassy in Guatemala
International Narcotics and Law Enforcement Agency (INL)

STATEMENT OF WORK

1. **Project Name:** Two (2) Electrical power generators (230/460 volts, three phases, 60 Hz) and electrical installation necessary in order to be fully operational (switching panel, breaker panels, transformer and main panel and all wiring and components to bring the system on line).
2. **Project Description:**
US Embassy Guatemala/INL requires the purchase of two (2) Electrical power Generators and electrical installation necessary to bring system on line.
3. **Project Deliverables:** **Technical Specifications for Electrical Equipment**
 - 3.1. **Generators**
 - a. Generator shall be prime power rated at **250kVA**. Standby rated units are not acceptable.
 - b. Generator: AC generator shall be synchronous, revolving field, brushless, single-bearing, air-cooled, self-ventilated alternator that is directly connected to engine crankshaft through flexible steel coupling. Generator shall be capable of operation at **50 and 60 Hertz**, shall have legibly identified power leads, and shall be connectable for Wye to supply **480/277 volts, 3 Phase, 4 wires**. Generator shall conform to applicable requirements of ANSI C50.10, and NEMA MG-1. Generator windings shall be copper and wound with 2/3 pitch. Generator shall have **Class H insulation** system rated at **105 degrees C temperature rise above 40 deg C ambient** when operating at prime rated load, and generator shall have amortisseur windings to minimize slot harmonics. Generator windings shall have protective overcoat for added protection in harsh conditions. Generator shall have drip-proof enclosure with ventilating openings covered by removable screens having mesh opening not larger than 13 mm. Bearing shall be double-sealed, sealed for life, permanently lubricated, anti-friction type.
 - I. Deviation factor: Deviation factor for line-to-line and line-to-neutral voltages for each connection shall not be more than five percent, nor shall any single harmonic exceed 3 percent when genset is operating at no load and rated load. Voltage total harmonic distortion at full load shall not exceed 5 percent.
 - c. Engine: Engine shall be heavy-duty standard commercial industrial diesel-fueled, liquid-cooled engine with sufficient power to drive generator and connected accessories, and to accept one-step application of rated load.

- d. Phase Balance (voltage): With genset under control of exciter and voltage regulator, and operating at rated voltage, frequency and no load, the maximum in line-to-neutral voltage shall not be more than one-half (0.5) percent of rated line-to-neutral voltage.
- e. Dielectric Strength: Windings shall withstand the following 50 Hz voltages applied for one minute:
 - I. Generator Stator: Twice rated line-to-line voltage plus 1000 volts between phase windings, and twice rated line-to-neutral voltage plus 1000 volts between phase windings and ground.
 - II. Generator Field and Exciter Windings: 10 times ceiling voltage, but neither less than 1,500 nor more than 3,500 volts, applied between windings and ground.
 - III. Windings Energized by DC Control, Cranking and Battery Charging Systems: 500 volts, applied between windings and ground.
 - IV. All Others: Twice rated voltage plus 1,000 volts, applied between winding and ground and between windings where applicable.
- f. Voltage Regulation: Voltage regulation shall be less than or equal to one half of one percent (0.5%) of rated voltage.
- g. Voltage Stability: At any constant load from no load to 110 percent of rated load, voltage shall remain within bandwidth of one percent of rated voltage.
- h. Voltage Drift: With genset operating at constant load and voltage, change in ambient temperature of 15 deg C in eight hour period shall not cause voltage to change more than one percent of rated voltage. Genset shall be stabilized at both initial and final ambient condition.
- i. Voltage Transient Performance:
 - I. With genset operating at rated frequency and voltage, transient voltage response shall remain within transient voltage operating limit values listed in ISO 8258-5 Table 4, with maximum possible power increase applied in stages as given by ISO 8528-5 guide values for maximum possible sudden power increases.
 - II. With genset operating at rated frequency and voltage, voltage shall not decrease more than thirty percent when motor with starting kVA equal to three times rated kVA of genset is suddenly applied. Voltage shall return to 95 percent of rated voltage within 3 seconds, and recover to 100 percent within 5 seconds.

- Voltage Operating Range: Voltage adjusting device shall be capable of adjusting voltage to plus-or-minus five percent of rated voltage with genset operating at any load up to 110 percent rated load.
- Short Circuit: Generator and/or excitation system shall not be mechanically and/or electrically damaged when temperature is stabilized at rated load and then subjected to faults at genset load terminals that draw 300 percent rated current for 10 seconds.
- Generator and Excitation System: Genset voltage performance shall conform to performance class G3 of ISO 8528.
- Starting and Operating: Genset shall start (see Article on "Definitions") within 10 seconds after receiving start signal under each and any combination of the following operating conditions. Immediately after starting, genset shall operate without failure (see Article on "Definitions") at all loads, continuous and intermittent, up to and including rated load as specified herein.
 - ✓ At all possible relative humidity, with ambient temperatures ranging from +50 deg C to - 25 deg C, with engine coolant at higher than + 20 deg C
 - ✓ At altitude specified in paragraph on "Service Conditions."
 - ✓ With base of set in planes from level to up to 15 degrees from level.
- Stopping: Genset shall stop within 30 seconds after activation of any device intended to stop set.
- Cool Down Period: Generators shall start and come on line automatically on loss of normal power. Before generators are shut down automatically on restoration of normal power, and after load has been transferred to normal power, generator shall run for at least 5 minutes to cool down.
- Operating Speeds: Operating speed for 50 Hz gensets shall be 1500 revolutions per minute (rpm). Operating speed for 60 Hz gensets shall be 1800 revolutions per minute (rpm).
 - ✓ Over speed: Sets shall be capable of operating at 115 percent of rated speed for 5 minutes without damage. Rated speed of sets shall be that required for set to produce rated frequency.
 - ✓ Flexural vibration and critical speeds: Set shall be free from dangerous flexural vibrations and dangerous torsional critical speeds between minimum low idle speed and 115 percent of rated speed.

- j. Sound Pressure Levels: Genset shall have sound attenuating accessories to reduce sound pressure level (SPL) at 7 meters (23 feet) from surface of genset and 1.2 meters (4 feet) above genset base to average "A" weighted sound pressure level as follows: Style I (Unhoused gensets): 90 dBA
- k. Radio Frequency Interferences: Radio interference emissions shall comply with BS EN55014 when genset is operating at any load from no load to rated load.
- l. Fuels and Lubricants: Engine shall start, operate and meet all performance requirements of this specification using commercial #2 diesel fuel and API CF multi-grade lubricating oil.
- m. Smoke Limits: Set engine shall operate under all conditions specified herein at all set loads up to and including rated load, with smoke reading of not more than 2.0 when measured using Robert Bosch EFAW 65 sampling pump and analyzed on Robert Bosch EFAW 68 analyzing instrument. Above smoke limit is not required if engine is EPA certified at horsepower required to drive generator at rated output.
- n. Life (Endurance) requirements: Genset shall have life expectancy of 10,000 hours at loads up to and including rated load under ambient conditions specified herein when maintained in accordance with manufacturer's instructions.
- o. Ease of Servicing, Operation, and Maintenance: Design and construction of gensets shall permit routine service and maintenance under field conditions. Parts that require adjustment or servicing shall be capable of being adjusted or serviced by personnel wearing heavy winter clothing or mittens. Genset shall be capable of being started and operated by one operator under all conditions. Starting or stopping set shall not require manipulation of more than one control or switch. Hardware that requires torqueing shall be able to be installed and serviced so that nut, bolt, or screwhead is accessible for torque wrench application. In assemblies where both bolt and nut are used, nut shall be accessible for torque wrench application. Genset maintenance and repair shall be accomplished with common standard tools. Servicing, operation, and maintenance requirements shall be capable of being met with genset in its installed location.
- p. Service Conditions: Environmental Conditions: Engine generator system withstands the following environmental conditions without mechanical or electrical damage or degradation of performance capability:
 - i. Ambient temperature: [5 to 40 deg. C.]
 - ii. Relative Humidity: [0 to 95 percent.]
 - iii. Altitude: [Sea level to 1500 m (5,000 ft.) above installed site location.]

3.2. Automatic Transfer Switch (ATS)

- a. The ATS shall be contactor based type and mechanically interlocked to prevent connection of both sources
- b. Amps rating shall be 400 Amp up to 600 VAC, but to be used in 480VAC
- c. The enclosure shall be NEMA 3R, for outdoor use
- d. The ATS shall be UL 1008 Listed and Seismic Zone 4 qualified

3.3. Dry Transformer

- a. Transformer shall be a Dry type with a capacity of 75kVA 3 phases Multi-purpose
- b. Transformer shall be able to be connected in Delta in the primary and Wye in the secondary for 480V/ 208-120V connection at 60Hz of frequency
- c. Transformer Degree of protection shall be UL type NEMA 3R Outdoor Enclosure
- d. Transformer shall be in accordance with UL 1561 and NEMA ST-20
- e. Transformer shall be Energy Efficient bigger than 95%
- f. The type of cooling of the transformer shall be by Natural Convection

3.4. Electrical Panels

- a. Main Breaker Panel 480V shall be UL listed with NEMA 3R Outdoor Enclosure, 400 Amp Rated, Main Breaker of 3 poles by 300 Amps and at least space for 4 circuit breakers
- b. Main Breaker Panel 208V shall be UL listed with NEMA 3R Outdoor Enclosure, 300 Amp Rated, Main Breaker of 3 poles by 300 Amps and at least space for 25 circuit breakers

3.5. Transient Volt Surge Suppressor (TVSS's)

- a. The TVSS shall be made in U.S.
- b. The TVSS shall be Category "C" 200kA, to install outdoor of the electrical installation system 480V/277V Wye connection 5 wires.
- c. Listed under UL 1449, UL 1283, and CSA approved
- d. Low let-through under IEEE Category B3, C1 and C3 test waves
- e. Independently tested to the published surge current ratings (per phase)
- f. Includes internal monitoring features (for both open and shorted MOV failures)
- g. Includes electrical noise filtering (55dB at 100kHz)
- h. The Contractor shall include all necessary parts, junction boxes, electrical conduit, panel, wires and/or accessories (if needed) to the installation of a new TVSS in their proposal in order to ensure that they will be fully operational upon installation following the National Electrical Code standards, and all of them shall be UL listed.

3.6. Circuit Breakers

- a. All circuit breakers shall be UL listed
- b. All circuit breakers shall be compatible with the load center (breaker Panel) where these will be installed
- c. All circuit breakers shall be 10kA short circuit current rating

3.7. Grounding System

- a. Grounding system shall be in accordance with NEC Art. 250, and Grounding electrodes shall be one of the permitted by NEC 250.52
- b. Resistance to ground shall be not bigger than 10 ohms
- c. Main Bonding Jumper shall be installed only in Main Breaker panel 480V and Main Breaker panel 208V and Sized regarding NEC Table 250.102
- d. Grounded conductor for generators shall be equal or bigger to Cooper AWG 2 or Aluminum AWG 1/0, and for Dry Transformer shall be equal or bigger to Cooper AWG 8 or Aluminum AWG 6
- e. Grounding wires for equipment shall be in accordance with NEC Table 250.122

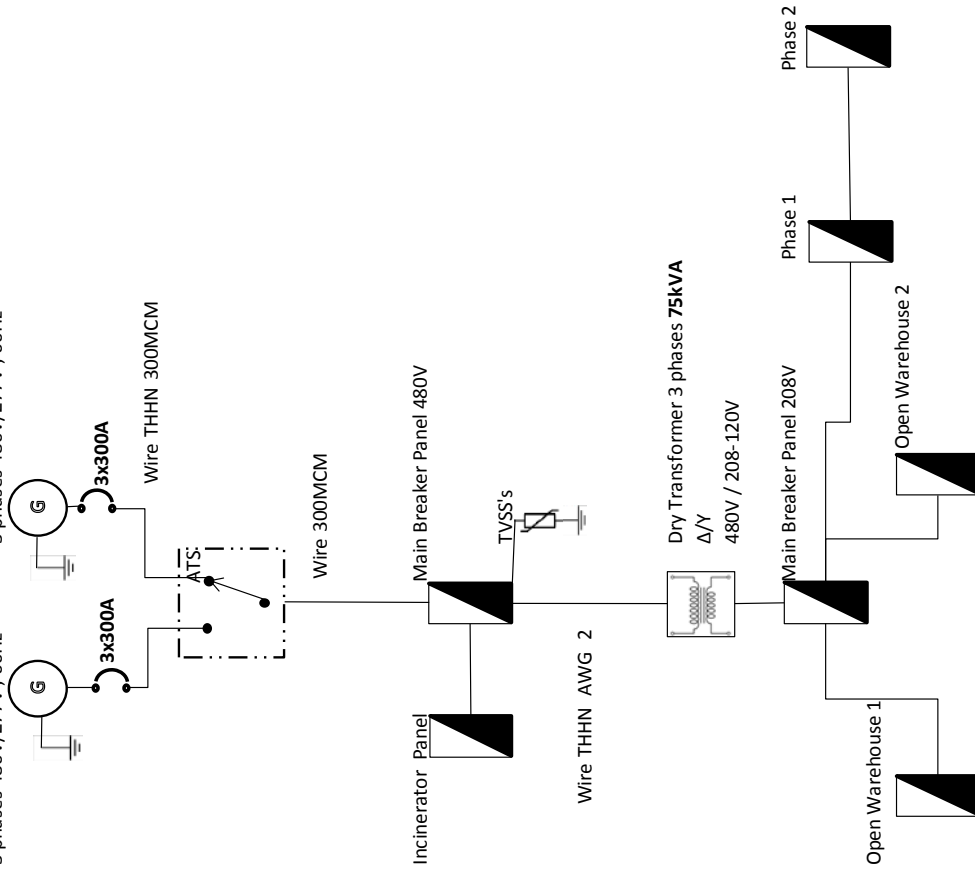
3.8. Distribution System

- a. All of the Distribution system, wiring, electrical ducts, panels and breakers, shall be Sized in accordance to NFPA 70 National Electrical Code NEC

SEE NEXT PAGE FOR ONELINE DIAGRAM

ONELINE DIAGRAM

Incinerator Generator **250 kVA** 3 phases 480V/277V ; 60Hz
 Incinerator Generator **250 kVA** 3 phases 480V/277V ; 60Hz



SIMBOLOGY	
	Generator
	Electrical Panel
	Automatic Transfer Switch [ATS]
	Transformer
	Transient Voltage Surge Suppressor [TVSS's]
	Circuit Breaker

4. **Site Visit to Finca La Estanzuela**

All of the equipment shall be installed at Finca La Estanzuela de Navaja, located at Km 24.5 Carretera a San Jose de Golfo, San José del Golfo, Guatemala, according to the above Online Diagram (distance and measurements shall be verified by potential vendor during the site visit).

A site visit has been scheduled for Thursday, February 16, 2017 at 10:30 AM.

If you would like to participate please confirm attendance to the site visit no later than Tuesday, February 14, 2017 to the email address TorresR@state.gov or by telephone call to (502) 2326-4593.

5. **Place of Delivery:**

The awarded vendor must deliver to, and install the equipment at the following location:

**Finca La Estanzuela
Km 22.5 Carretera a San José del Golfo,
San José del Golfo, Guatemala**

6. **Suggested Delivery Schedule:**

Vendor shall consolidate the entire shipment to prevent loss and misdirection. Partial shipments will not be permitted.

The selected vendor must complete the shipment, delivery and installation of all the requested equipment within **60 calendar days after purchase order acceptance**.

COMPLIANCE WITH DELIVERY TIME WILL BE A CRITICAL FACTOR FOR EVALUATION OF OFFERS.

7. **Shipping, licenses, packaging and marks:**

Vendor shall assign consignee as follows:

**EMBAJADA DE ESTADOS UNIDOS DE AMERICA
ATTENTION: INL
Avenida Reforma 7-01 zona 10
Guatemala, City**

- The vendor will ensure that all items are prepared for safe shipment and include all necessary export (from origin) and import (at destination) approvals if the equipment is imported. Purchase order price includes delivery to the final destination and compliance with all applicable licensing requirements.

Packing and Marking:

- Each box, carton, and package shall be marked as follows:

**EMBAJADA DE ESTADOS UNIDOS DE AMERICA
ATTENTION: INL
Guatemala City, Guatemala
Purchase Order No. (to be determined upon award)
Box #__ of __**

- Improperly marked shipments may be rejected by the Government

8. Quality Control, Training and Acceptance :

Quality control acceptance of completed services and Invoice under this contract shall be based on:

- The successful delivery of all items as described in this document.
- Compliance with all specifications written in this statement of work.
- Vendor bills for services rendered upon delivery.
- The vendor is required to replace any defective items at no additional cost to the U.S. Government within 60 days of receipt and inspection by a U.S. government employee.

9. Training

Offer shall include a training plan. This training shall occur at Finca La Estanzuela, Km 22.5 Carretera a San José del Golfo, San José del Golfo, Guatemala, and must comply with the following requirements:

- Training will preferable be provided in Spanish. INL/G will facilitate the names and contacts of qualified translators if needed.
- Contents of training are directed towards Guatemala law enforcement officials and will include guidance on the correct use and operational maintenance of the equipment, stressing safety standards.
- The initial training must be for 2 days and for 15 Guatemalan operators.
- The vendor must also include in their quote a five (5) day Trouble Shooting and Follow Up training module and technical visit carried out on-site at Finca La Estanzuela, Km 22.5 Carretera a San José del Golfo, Guatemala for all Guatemalan operators between the time frame of four (4) to ten (10) months after the initial training.
- All original training materials must be printed and provided in both English and Spanish.

10. Operation and Maintenance (O&M) and Warranty:

- All warranty and maintenance will be performed in Guatemala.
- The vendor will provide a minimum of one (1) year warranty, and quote/offer three (3) additional option years to be acceptable.

- Maintenance shall be performed according to manufacturer recommendations and be provided on-site. To this end, the offeror will submit a maintenance plan and a quote for one (1) first maintenance visit, and additional six (6) semi-annual maintenance visits. Offer from vendor will include price for all estimated labor and spare parts. **Each maintenance service is to be invoiced after it has been performed and satisfactorily received by designated INL Supervisor.**
- Vendor must provide Operations and Maintenance Manuals in English and Spanish at no extra-charge.
- It is desirable that technical assistance support personnel be Spanish speakers, but not a requisite.

11. Point of Contact:

The point of contact for this solicitation is Ricardo Torres/Purchasing Agent, Telephone (502) 2326-4593, email: TorresR@state.gov

12. Detail of Quotation:

Guatemalan companies must be able to invoice in Guatemalan currency, Quetzales. An IVA exemption form will be applied to purchase.

The following FAR Commercial Clause applies to this procurement:

52.225-17 EVALUATION OF FOREIGN CURRENCY OFFERS (FEB 2000)

If the Government receives offers in more than one currency, the Government will evaluate offers by converting the foreign currency to United States currency using the exchange rate used by the Embassy in effect as follows:

(a) For acquisitions conducted using sealed bidding procedures, on the date of bid opening.

(b) For acquisitions conducted using negotiation procedures—

- (1) On the date specified for receipt of offers, if award is based on initial offers; otherwise
- (2) On the date specified for receipt of proposal revisions.

(End of clause)

Quotations are due Thursday, February 23, 2017 by COB 17:00 hours.

Please use table in next two pages to quote on this project:

QUOTE ON SOLICITATION SGT50017Q0023

Two (2) Electrical power generators (230/460 volts, three phase, 60 Hz) including accessories, electrical installation, maintenance, training and support.

NAME OF QUOTER:

Line item#	Line item description	Quantity	Unit Price US\$	Extended Price US\$
1	Electrical Power Generator as described in this solicitation.	2		
2	Automatic Transfer Switch as described in this solicitation.	1		
3	Dry Transformer as described in this solicitation.	1		
4	Electrical Panels (lot) as described in this solicitation.	1		
5	Transient Volt Surge Suppressor (TVSS's) as described in this solicitation.	1		
6	Circuit breakers (lot) as described in this solicitation.	1		
7	Grounding System as described in this solicitation	1		
8	Distribution System as described in this solicitation.	1		
9	Total freight expenses to final destination.	1		
10	Complete Installation, initial start-up and testing.	1		
11	Initial 2-day training	1		
12	5-day trouble-shooting and follow-up training module and technical visit	1		
13	Optional warranty years additional to standard one year warranty	3		
14	First Maintenance Service	1		
15	Semi-annual maintenance service number 1	1		
16	Semi-annual maintenance service number 2	1		
17	Semi-annual maintenance service number 3	1		

18	Semi-annual maintenance service number 4	1		
19	Semi-annual maintenance service number 5	1		
20	Semi-annual maintenance service number 6	1		
GRAND TOTAL				